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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR                         | ATTORNEY DOCKET NO. | CONFIRMATION NO.  |
|--|-------------|--|---------------------|-------------------|
| 10/825,224   | 04/16/2004  | Johannes Petrus Martinus Bernardus Vermeulen | 081468-0309212      | 7269              |
| 909  | 7590        | 08/08/2005                                   |                     | EXAMINER          |
| PILLSBURY WINTHROP SHAW PITTMAN, LLP<br>P.O. BOX 10500<br>MCLEAN, VA 22102 |             |  |                     | MULLINS, BURTON S |
|  |             |  | ART UNIT            | PAPER NUMBER      |
|  |             |  | 2834                |                   |

DATE MAILED: 08/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/825,224             | VERMEULEN ET AL.    |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Burton S. Mullins      | 2834                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

#### A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is **FINAL**.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1-18 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 16 April 2004 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | Paper No(s)/Mail Date. ____.  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: ____.                                    |

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to because Figs.4-5, while purporting to show the claimed invention, appear to simply show the prior art construction of Fig.3 from different perspectives. For example, h1 in Fig.3 is also shown in Fig.5 and refers to the same dimension, the total thickness of the crossover. Fig.4 appears to be a top view of the prior art coil system of Fig.3, with coil sections 7A/B and 8A/B placed in the open area of coil 6A/B, in the same plane. In other words, the drawings do not clearly show the features of the claimed invention.

Further, the claimed “cross-sectional area[s]” of the windings in and outside of the crossover sections in claims 5 and 16 are not clearly shown in the drawings.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

2. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1, 8 and 10-11, recitation “the combined crossover section heights of the crossover sections in the crossover area equal at most a height of one of the at least one first coil and the at least one second coil outside the at least one crossover area” is vague and indefinite because it is not clear if this means the combined crossover section height, i.e.,  $h_2+h_2+h_2$  in Fig.5, is less than or equal to the total height of all the coils outside the crossover area, i.e.,  $h_1$  in Fig.5, or if the sum is less than the height of any one of the coils. The specification seems to suggest the former interpretation (see p.12, paragraph 53; Fig.5); however, the language “one of the at least one first coil and the at least one second coil” also implies an interpretation wherein the combined cross-over height is at most a height of either the first coil or the second coil. For purposes of examination, the former meaning will be taken, with the stated height limitation shown in Fig.5 as  $h_1$ . If the latter meaning is intended, the drawings should be corrected because  $h_1$  in Figs.3&5 currently denotes the height of all the coils outside the crossover area.

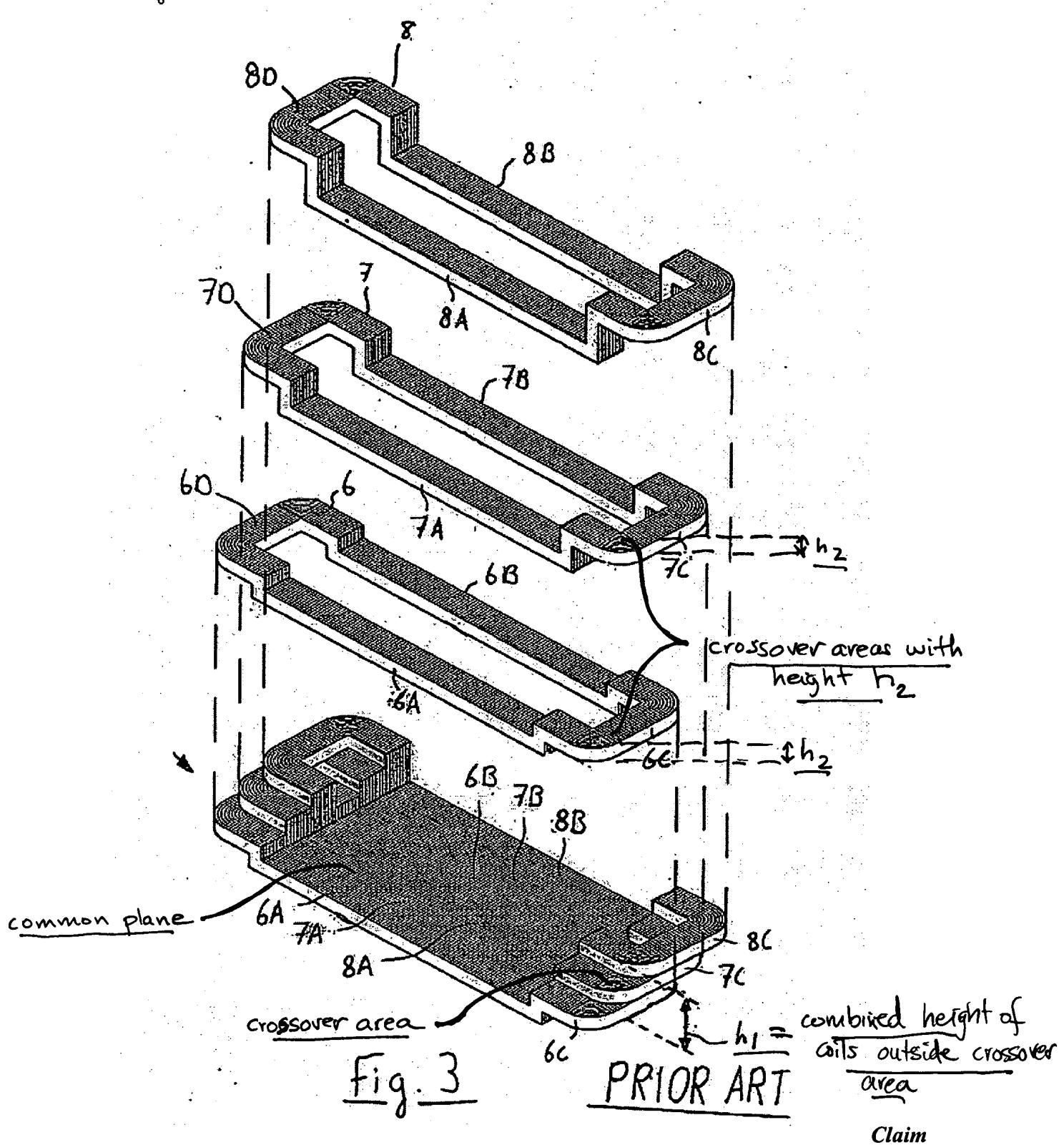
***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-18, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by applicant's admitted prior art. Figs.2-3 and pp.1-3 and 11-12 teach the prior art coil assembly including, with reference to the attached marked copy of Fig.3, at least one first coil (6); and at least one second coil (7), wherein the coils (6A/6B and 7A/7B) are arranged in a common plane, the at least one first coil and the at least one second coil overlapping one another partially and defining at least one crossover area where respective crossover sections of the at least one first coil (6) and the at least one second coil (7) cross one another, and the crossover sections having a respective crossover section height  $h_2$  perpendicular to the common plane, the combined crossover section heights of the crossover sections in the crossover area equal at most a height  $h_1$  (spec. p.11, last line-p.12, first line) of one of the at least one first coil and the at least one second coil outside the at least one crossover area.



Regarding claim 2, note third coil (8) arranged in a common plane with coils 6 and 7, wherein the first, second and third coil overlap one another partially in at least one crossover area and in the at least one crossover area the respective crossover sections of the first, second and third coils cross over one another.

Regarding claim 3, each coil 6-8 has a first side and a second side, the first and second sides being oriented parallel to the common plane, the first and second sides being located at a distance from one another, thereby defining the height of the coil, each crossover section height of each coil is arranged between a first plane and a second plane, and the first and second plane are defined by the respective first and second sides of each coil.

Regarding claim 4, the crossover section of the second coil 7 is positioned between the crossover sections of the first and third coils 6 and 8 in a direction perpendicular to the common plane.

Regarding claim 5, each respective coil 6-8 comprises at least one winding, and wherein the cross-sectional area of the at least one winding in a crossover is smaller than the cross-sectional area of the at least one winding outside the crossover section, e.g., in the bent region where coil sections 6A/6B connect with crossover sections 6C/6D (Fig.3).

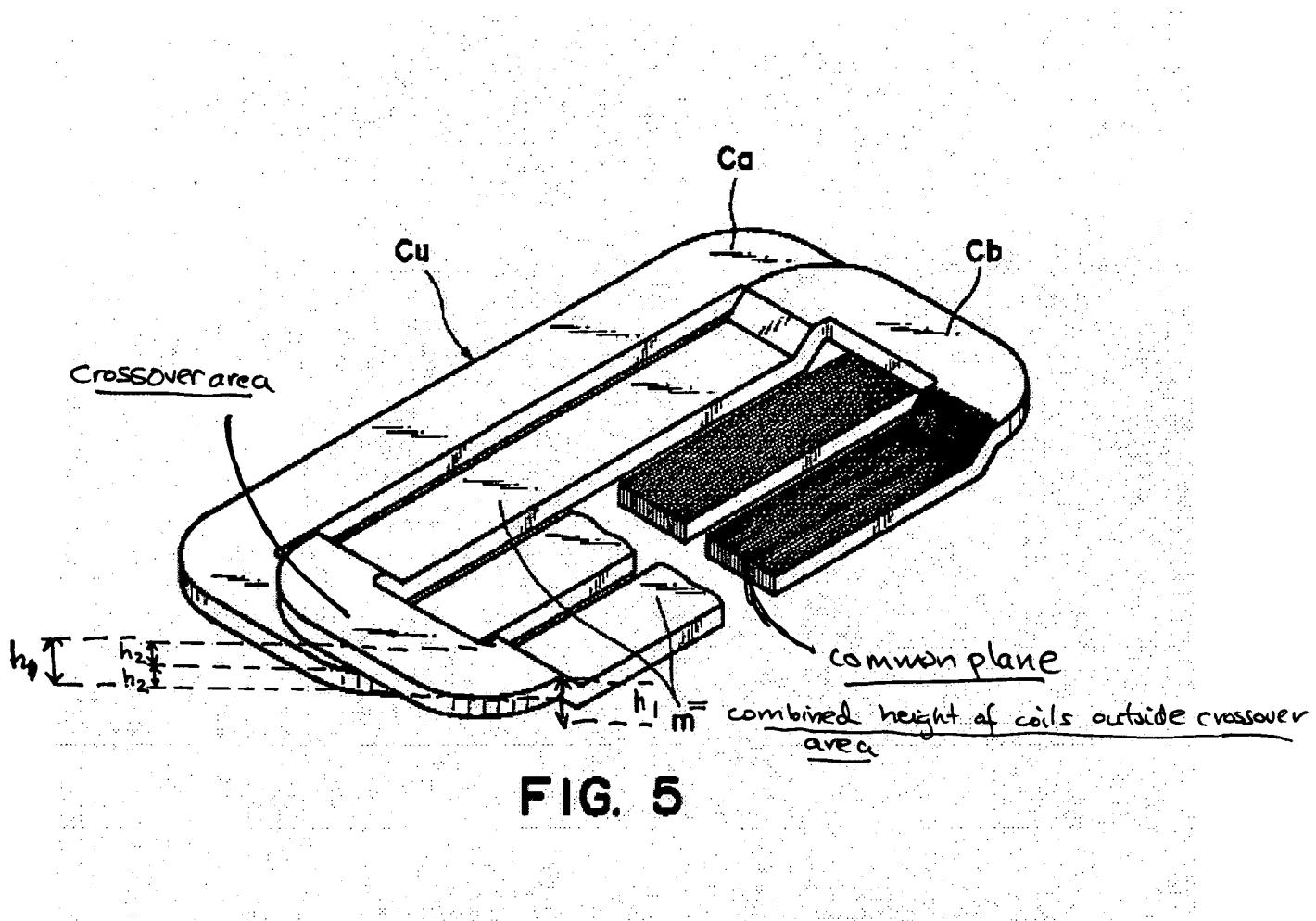
Regarding claim 6, the crossover section heights are equal to each other (Figs.2-3).

Regarding claim 7, the coils have rectangular form with two long legs (6A/6B) and two short legs (6C/6D), with the crossovers in the area of the short legs (6A/6D).

Regarding claims 8-18 and in particular the details of a lithographic apparatus with an illumination system, a support for a patterning device, a substrate table, a positioning device and

a magnet system which moves relative to the coil system, the prior art teaches this, as disclosed on pp.1-3 and Fig.2 of the specification.

5. Claims 1, 3, 5-12 and 16-18, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Korenaga (US 6,265,793). Korenaga teaches a coil assembly (Fig.5) including at least one first coil (Ca); and at least one second coil (Cb), wherein the coils are arranged in a common plane, the at least one first coil and the at least one second coil overlapping one another partially and defining at least one crossover area where respective crossover sections of the at least one first coil and the at least one second coil cross one another, and the crossover sections having a respective crossover section height  $h2$  perpendicular to the common plane, the combined crossover section heights of the crossover sections in the crossover area equal at most a height  $h1$  of one of the at least one first coil and the at least one second coil outside the at least one crossover area.



Regarding claim 3, each coil 6-8 has a first side and a second side, the first and second sides being oriented parallel to the common plane, the first and second sides being located at a distance from one another, thereby defining the height of the coil, each crossover section height of each coil is arranged between a first plane and a second plane, and the first and second plane are defined by the respective first and second sides of each coil.

Regarding claim 5, each respective coil 6-8 comprises at least one winding, and wherein the cross-sectional area of the at least one winding in a crossover is smaller than the cross-

sectional area of the at least one winding outside the crossover section, e.g., in the bent region where coil sections 6A/6B connect with crossover sections 6C/6D (Fig.3).

Regarding claim 6, the crossover section heights are equal to each other (Figs.2-3).

Regarding claim 7, the coils have rectangular form with two long legs (6A/6B) and two short legs (6C/6D), with the crossovers in the area of the short legs (6A/6D).

Regarding claims 8-18 and in particular the details of a lithographic apparatus with an illumination system, a support for a patterning device, a substrate table, a positioning device and a magnet system which moves relative to the coil system, the prior art teaches this, as disclosed on pp.1-3 and Fig.2 of the specification.

Regarding claims 8-12 and 16-18, Korenaga teaches the details of a lithographic apparatus with an illumination system 99 (Fig.15), a support (frame 96) for a patterning device (reticle 95) , a substrate table (wafer stage) 93, a positioning device and a magnet system 3 which moves relative to the coil system 2 (c.15, lines 15-20),

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 571-272-2029. The examiner can normally be reached on Monday-Friday, 9 am to 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or

proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Burton S. Mullins  
Primary Examiner  
Art Unit 2834

bsm  
04 August 2005

misc. notes

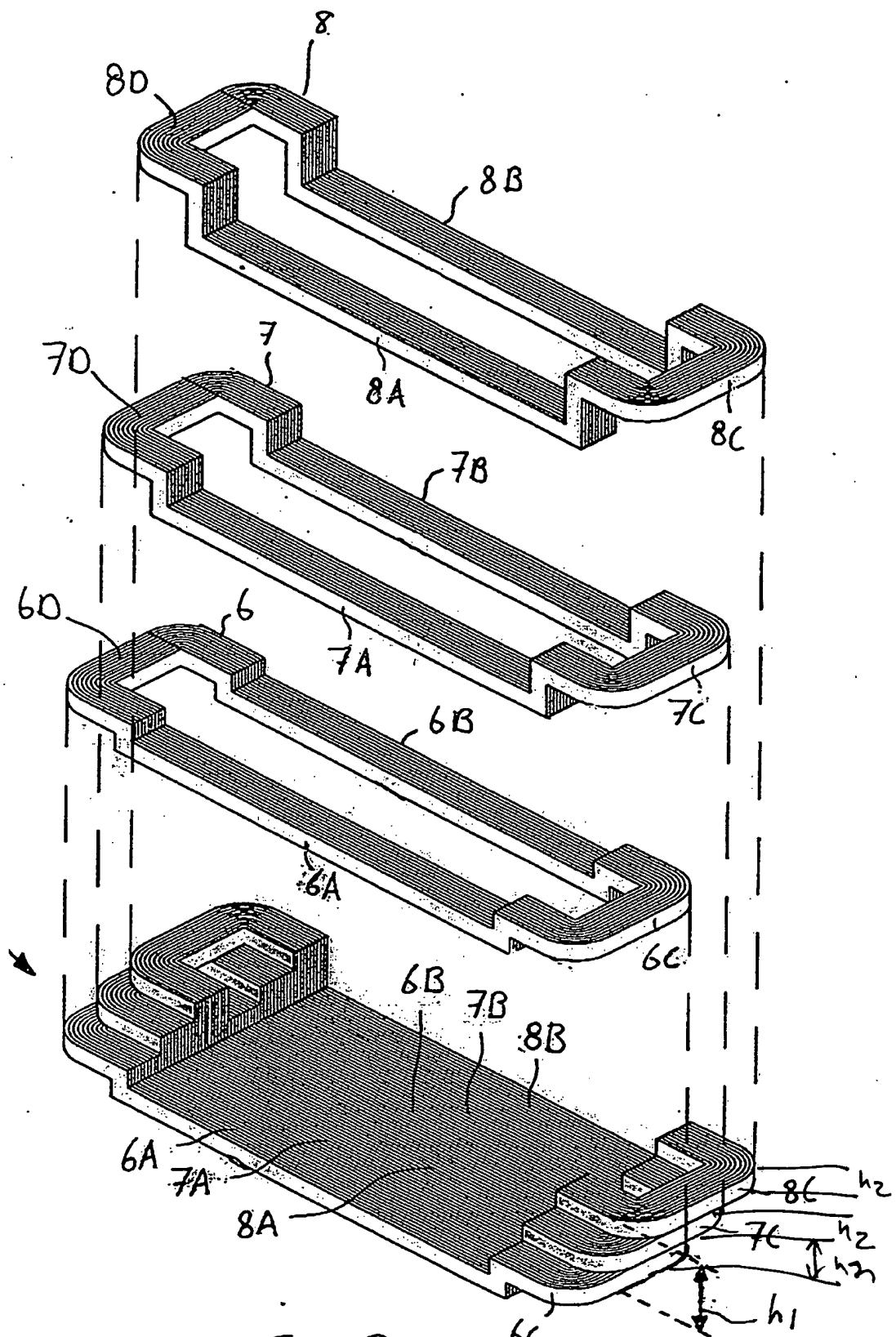


Fig. 3

PRIOR ART

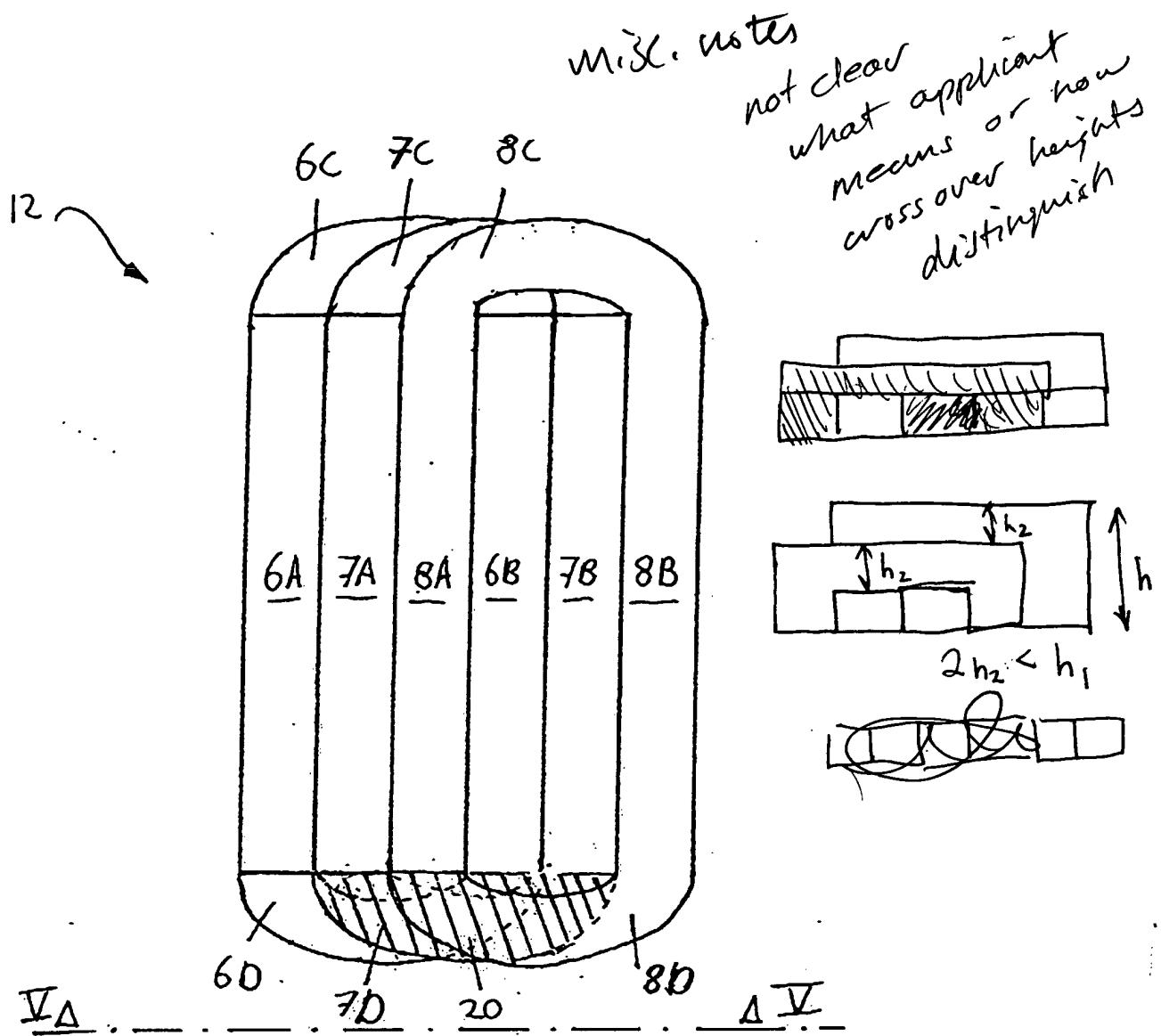


Fig. 4

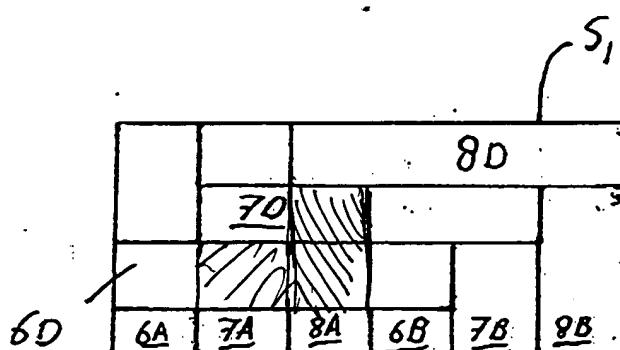


Fig. 5

crossover height  
what is  $h_1$  combined  
heights outside  
 $3h_2 < h_1$   
or just height  
of 1 coil outside  
x-over area??